Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ABRAHAM ARAYA

Appeal No. 1997-2974
Application No. 08/288,313

ON BRIEF

Before KIMLIN, WARREN and OWENS, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claim 2, the only claim remaining in the present application. Claim 2 is reproduced below:

2. A process for the industrial scale preparation of P zeolite having the oxide formula

$$M_{2/n}O.A1_2O_3.(1.90\text{-}2.10)SiO_2.y\ H_2O$$

wherein M is an n-valent alkali metal cation and y is the water content, comprising the steps of:

i. mixing a sodium aluminate solution having a temperature of at least 60EC with a sodium silicate solution at a temperature of at least 60EC in a stirred vessel of $2m^3$ volume or more, in the presence of a slurry of P zeolite seed to form a gel having the composition,

$$A1_2O_3:(1.80\text{-}2.2)SiO_2:(1.5\text{-}5)Na_2O:(40 \text{ to } 150)\ H_2O$$

ii. ageing the gel at a temperature above about 60EC with stirring to maintain solids in suspension for a period of at least about 0.1 hour,

iii. separating the P zeolite product, washing the separated P zeolite product and drying the same.

The examiner relies upon the following references as evidence of obviousness:

Vaughan et al. (Vaughan)	4,178,352	Dec. 11, 1979
Brown et al. (Brown)	0,384,070	Aug. 29, 1990

Appellant's claimed invention is directed to an industrial scale process for preparing P zeolite of the recited formula. The method entails mixing a sodium aluminate solution and a sodium silicate solution in the presence of a slurry of P zeolite seed to form a gel of the specified formula. The P zeolite finds utility in detergent formulations to remove calcium and magnesium hardness ions.

Appealed claim 2 stands rejected under 35 U.S.C. § 103 as being unpatentable over Brown in view of Vaughan.

We have thoroughly reviewed each of appellant's arguments for patentability. However, we are in complete agreement with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejection for essentially those reasons expressed in the Answer.

As set forth by the examiner, Brown, like appellant, discloses a process for preparing a P zeolite having a silicon to aluminum ratio within the claimed range that is used in detergent compositions. Brown does not disclose the claimed use of P zeolite seed to form the gel but, as pointed out by

the examiner, Vaughan evidences that it was conventional in the art to utilize zeolite seed, or nucleation centers, in the preparation of zeolites (see column 1, lines 17-20 and 41-46). Accordingly, based on the state of the prior art, we are satisfied that it would have been obvious for one of ordinary skill in the art to use zeolite seed in the preparation process of Brown for preparing a P zeolite of the claimed formula.

Appellant emphasizes that the claimed process is on an industrial scale, i.e., in a stirred vessel of $2m^3$ volume or more, whereas Brown "is limited to laboratory scale operations" and is not capable of an industrial scale preparation (page 6 of principal brief). In addition, appellant relies upon the disclosure in WO 94/26662 (hereinafter WO '662) for evidence that "using the teaching of Brown, it is not possible to produce a zeolite P type having the following formula . . . in a reactor tank of 2 m^3 or above" (page 9 of principal brief, lines 1-4).

Our review of WO '662, as well as the entire evidence of record, leads us to the conclusion that appellant has not established on this record that it is not possible to prepare

P zeolite on an industrial scale by following the teachings of the Brown disclosure. Contrary to appellant's argument, WO '662 makes no such assertion. In discussing the Brown process, WO '662 states that such process "with such a gel composition, even though being suitable for producing zeolite P on a bench scale, can't always be directly transposed to industrial scale" (page 2, penultimate paragraph, emphasis added). On page 4, WO '662 states that "[o]ne of the problems is that the vigourous stirring which can be achieved on a bench scale, and which allows the formation of zeolite P instead of zeolite A, can't always be achieved when stirring a $1.5m^3$ pool, or bigger" (first paragraph). Consequently, from these disclosures of the reference, it seems to us that a fair interpretation is that the Brown process can't always produce zeolite P, but sometimes produces mixtures of zeolite P and zeolite A. This interpretation is further supported by the disclosure of WO '662 that "it has now been found that it is in any case impossible to produce pure zeolite P with a gel dilution n below 250 for a SiO_2/Al_2O_3 molar ratio of the gel below 2.1 if the gel has a volume of above $1.5m^3$" (page 4, first full paragraph). In our view, the evidence relied upon

by appellant indicates that the Brown process cannot consistently produce pure zeolite P on an industrial scale, or, at most, always produces a mixture of zeolite P and zeolite A. However, inasmuch as the appealed claims do not define any degree of purity for the produced zeolite P, the drawbacks of the Brown process described by WO '662 cannot serve as a point of distinction from the claimed process. In other words, there is no evidence of record that processes within the scope of the appealed claims are unexpectedly superior to the processes of producing P zeolite disclosed by Brown in terms of consistency or purity. Since the examiner correctly reasons that it is a matter of obviousness for one of ordinary skill in the art to make the appropriate modifications when scaling up a bench procedure to industrial size, and it was also well-known in the art to employ zeolite seed in forming zeolites, the burden is not insubstantial on appellant to present evidence of nonobviousness to outweigh the evidence of obviousness. In our view, no such evidence of nonobviousness is of record.

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

EDWARD C. KIMLIN Administrative Patent Judge	)	
CHARLES F. WARREN Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
TERRY J. OWENS Administrative Patent Judge	)	

ECK:clm

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